

Primary Postpartum Hemorrhage and Maternal Health-Effects and Outcome

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ABSTRACT

Objective: To assess outcome of different management strategies in women presenting with primary postpartum hemorrhage (PPH). **Study Design:** Observational, prospective. **Settings:** Department of Obstetrics & Gynecology Unit-III, Liaquat University of Medical and Health Sciences, Jamshoro Pakistan. **Duration:** From May 2016 to November 2017. **Methodology:** Total 50 delivered women fulfilling the inclusion criteria were included in study. All relevant variable like a detailed demographic characteristics, details about labour, symptomatology, general conditions of patient, amount of blood loss, clinical examination, finding such as condition of the uterus, genital tract trauma, retained placenta, uterine inversion. Investigation like complete blood picture blood group, blood sugar, coagulation profile, serum electrolytes, virology status, liver function test, renal function test, ultrasound examination, maternal effects and outcome were recorded on proforma and analyzed by using SPSS. **Results:** Among 50 women (with primary PPH) included in this study, all were managed medically, in 24 patients medical treatment was unsuccessful so surgical treatment offered. Most common cause identified was uterine atony, however anemia 50(100%). Hypovolemic shock 5(10%), puerperal sepsis 8(16%), complication of anesthesia 4(8%), blood reactions 6 (12%) were the morbidities observed in present study, 2 patients (4%) died inspite of all measures. **Conclusion:** It was concluded that best results were obtained with use of AMTSL, combination of more than on medical option and surgical management were equally effective in treating the PPH.

Keywords: Primary PPH, Medical, Surgical, Treatment

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INTRODUCTION

Primary postpartum hemorrhage is the leading cause of maternal mortality accounting for about 19.7% all pregnancy related deaths worldwide.¹ It is defined as a cumulative blood loss >500ml following vaginal delivery or >1000ml following caesarean delivery or any amount of blood loss within 24hours after birth evidenced by a rise in pulse rate, and falling blood pressure.^{1,2} There are many alterations that can lead to a PPH, but the main causes of postpartum hemorrhage are: uterine atony (90%), cervical and/or perineal lacerations (5%), placental fragments retention (4%), coagulation deficiencies or alterations, uterine inversion, uterine rupture. The morbidly adherent placenta, i.e., placenta accreta, increta or percreta, is nowadays an important cause of primary hemorrhage. Previous uterine surgery, such as caesarean section, significantly increases the risk of morbidly adherent placenta.^{3,4} There are 600,000 maternal deaths reported worldwide every year and 99% of these occur in developing countries.^{5,6} 25% of deaths in developing world are due to PPH, the prevalence is 34% in Pakistan.⁵ Management of post-partum hemorrhage (PPH)

involves the treatment of uterine atony, evacuation of retained placenta or placental fragments, surgery due to uterine or birth canal trauma, balloon tamponade, effective volume replacement and transfusion therapy, and occasionally, selective arterial embolization.⁷ The timely identification of PPH in each case and the activation of emergency management plans are crucial components of this safety bundle.^{8,9} Multiple guidelines agree about the establishment of primary measures to decrease maternal morbidity and mortality related to PPH.⁹ The practitioner who identifies the developing complication takes the role of the first responder, implementing immediate life support actions and preparing the environment for the arrival of a multidisciplinary team.⁹ However this study has been conducted to assess outcome of different management strategies in women presenting with primary postpartum hemorrhage (PPH).

METHODOLOGY

Study Design: Observational Prospective study.

Settings: Department of Obstetrics & Gynecology Unit-III, Liaquat University of Medical and Health Sciences, Jamshoro Pakistan.

Duration: This study was carried out from May 2016 to November 2017.

Sample Technique: Non probability-convenience.

Sample Size: Total 50 patients were enrolled.

Inclusion Criteria: All delivered patients admitted with primary postpartum hemorrhage to labour ward in emergency were included.

Exclusion Criteria: Patients with secondary postpartum hemorrhage, bleeding disorders, liver diseases patients, patients having current history of anticoagulant therapy and those were not agreed to participate in the study.

Data Collection Procedure: All those women fulfilling the inclusion criteria were studied after taking informed written consent. Complete medical history and clinical examination including demographic characteristics, detailed about labour, general conditions of patient, amount of blood loss, clinical examination, findings such as condition of the uterus, genital tract trauma, retained placenta, uterine inversion were done. Routine laboratory investigation were done including Investigation complete blood picture blood group, blood sugar, coagulation profile, serum electrolytes, virology status, liver function test renal function test and ultrasonography. All the patients underwent different treatment modalities such as correction of shock, uterine massage, vaginal or intra uterine packing syntometrine injection. Misoprostol tablets, prostaglandin F₂ alpha intramuscular / intra-myometrium, examination under anesthesia, repair of episiotomy, perineal tears, manual exploration of uterine cavity, laparotomy, repair of uterine perforation, brace sutures, internal iliac artery ligation and caesarean hysterectomy. Maternal outcome was measured in term of complications and maternal mortality. All the data was recorded by study proforma.

Data Analysis: The data was analyzed on SPSS version 20.0 (IBM, Corporation). The continuous variables were presented as mean \pm SD. Categorical variables were analyzed using frequencies and percentages. Data was presented in tables, graphs and charts.

RESULTS

age was 31.2 \pm 12.39 years. Most of the females 39(78%) were un-booked and majority of patients were parous \geq 4. Anemia was found in all cases and most of the women 88.0% were poor socioeconomically. Majority of the women delivered via spontaneous vaginal delivery, 16.0% underwent c-section, forceps delivery was done in one case and vacuum delivery was also done in one patient. Out of all 62.0% were delivered at Hospital, 28.0% were done at home and then referred to tertiary care Hospital, 8.0% were delivered at private hospitals and one delivered at auto-rikshaw when they were coming to Hospital. According to the durations of deliveries, mostly

women delivered during 5-10 hours or more than 10 hours. Out of all 14.0% patients had history of previous c-section. Seventy present deliveries were conducted by doctors, 28.0% were done by traditional birth attendant and one delivery was done by nurse. Table 1

Table 1: Demographic statistics of study population (n=50)

Variables		Statistics
Age	Mean \pm SD	31.2 \pm 12.39 years
Parity	Primigravida	8 (16.0%)
	Para 2-3	16 (32.0%)
	Para >4	26 (52.0%)
Booking status	Booked	11 (22.0%)
	Un-booked	39 (78.0%)
Anemia	Yes	50 (100.0%)
	No	00
Socioeconomic status	Poor	44 (88.0%)
	Middle	06 (12.0%)
	Upper	00
Mode of delivery	SVD	38 (76.0%)
	LSCS	08 (16.0%)
	VBAC	01 (2.0%)
	Forceps Delivery	01 (2.0%)
	Vacuum Delivery	02 (4.0%)
Place of delivery	Home	14 (28.0%)
	Hospital	31 (62.0%)
	Private hospital	04 (8.0%)
	Auto-rikshaw	01 (2.0%)
Duration of delivery	<5 hours	03 (6.0%)
	5-10 hours	25 (50.0%)
	>10 hours	22 (44.0%)
History of previous caesarean section	Yes	7 (14.0%)
	No	43 (86.0%)
Delivery conducted by	Doctor	35 (70.0%)
	Nurse	01 (2.0%)
	Traditional birth attendant	14 (28.0%)

According to cause's assessment, uterine atony was seen in most of the women followed by retained placenta and genital tract trauma. Figure 1

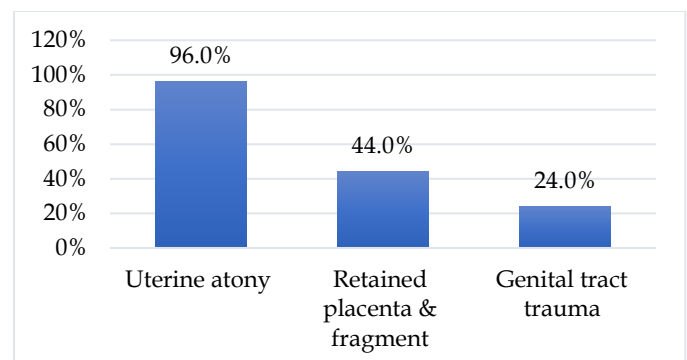


Figure 1: Different causes of primary PPH

The most common medical treatment instituted was the Syntocinon and Misoprostol (n=28, 56%) and surgical intervention was performed in 48% (n=24) of study population. Table 2

Table 2: Maternal complications in study population (n=50)

Complications	Frequency (%)
Prolonged hospital stay	18 (36.0%)
Infection	8 (16.0%)
Septicemia	01 (02.0%)
DIC (Disseminated intravascular clotting)	02 (04.0%)
Renal failure	06 (12.0%)
Hypovolemic shock	05 (10.0%)
Complication of anesthesia	04 (08.0%)
Blood reaction	06 (12.0%)

In present study a maternal mortality of 2 (4%) was observed as shown in fig.2.

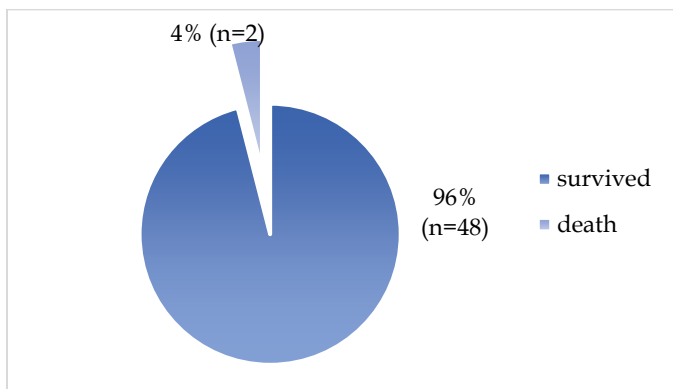


Figure 2: Pie-chart showing maternal outcome in term of mortality (n=50)

DISCUSSION

Postpartum hemorrhage is a leading cause of maternal mortality. The place of delivery and severity of hemorrhage determine the outcome. If the woman has developed PPH following delivery in a health facility, the immediate medical and surgical interventions are possible. In present study, mean age of patients was 31.2 ± 12.39 years. Most of the females 39 (78%) were unbooked and majority of patients were parous >4. In study conducted by Edhi MM et al¹¹ reported that mean age of patients was 26.153 ± 7.37 years. All cases were unbooked and fully conscious. There were 92.3% cases which referred from local hospitals and 7.7% referred from other tertiary care hospitals. Most of the patients had postpartum hemorrhage after the delivery of 1st child 38.5%, while 30.8% suffered after the birth of 3rd child and 15.4% suffered after the birth of 2nd child. Another study conducted by Wagh K et al¹² reported that

mean age of the enrolled pregnant women was 23.88 ± 3.66 years.

In this study majority of the women delivered via spontaneous vaginal delivery, 16.0% underwent c-section, forceps delivery was done in one case and vacuum delivery was also done in one patient. Deliveries by caesarean section were associated with increased risk of PPH. This is consistent with previous studies conducted by Sheldon WR et al¹³ and Lutomski JE et al¹⁴ that report cesarean births being associated with increased risk of PPH. It is not so, when woman delivers at home or in a small hospital ill equipped with facilities to manage obstetric emergencies. Diagnosis of PPH and decision to transfer to hospital or tertiary care centre is very crucial. Home deliveries and deliveries in small facilities have negative influence on the outcome. Crucial time is lost in transfer of patient to higher centres. At times patients are transferred as per transfer protocols of the health care centres, which may further because delay as small health facilities, including primary health centres and rural hospitals are not equipped with desired specialist manpower and blood transfusion facilities.

In this study, out of all 62.0% were delivered at Hospital, 28.0% were done at home and then referred to tertiary care Hospital, 8.0% were delivered at private hospitals and one delivered at auto-raksha when they were coming to Hospital. According to the durations of deliveries, mostly women delivered during 5-10 hours or more than 10 hours. Out of all 14.0% patients had history of previous c-section. Seventy present deliveries were conducted by doctors, 28.0% were done by traditional birth attendant and one delivery was done by nurse. In study conducted by Bangal V et al¹⁵ reported that the incidence of atonic PPH was 0.99% and 1.10% for elective and emergency caesarean sections respectively. There were 33 referred cases of atonic PPH during study period. Out of 33 cases, 22 had vaginal delivery and 11 had undergone caesarean section in private or government hospitals.

In present study, according to cause's assessment, uterine atony was seen in most of the women followed by retained placenta and genital tract trauma. These findings were evident by the studies conducted in America and Pakistan.^{16,17} Similar findings were reported in a study conducted by Chandrika S et al among 12356 pregnant women and found the prevalence of postpartum hemorrhage was 1% and found the most common etiology reported for the post-partum hemorrhage was atonicity of the uterus.¹⁸ Similar findings were reported in a study conducted by Chitra S et al among 250 cases and 250 controls and found prevalence of PPH was 3.4%. They found atonicity was the most common etiology behind PPH.¹⁹ Another study conducted by Shaikh S et al²⁰ reported that most common cause of postpartum hemorrhage was uterine atony. Most cases were referred and delivered at home or private maternity clinics run by Traditional Birth Attendants (TBAs) so they reach in

moribund condition. 64(69%) women delivered vaginally. Initially all patients were managed pharmacologically followed by surgical intervention. In this study, the most common medical treatment instituted was the Syntocinon and Misoprostol (n=28, 56%) and surgical intervention was performed in 48% (n=24) of study population. Similar results were reported by Gohil et al.²¹ Study conducted by Nanani M et al²² reported that Post-partum hemorrhage can be managed effectively by active management of the third stage of labour with use of uterotonics and blood transfusions. 81% pregnant women with PPH were given uterotonics with less than 2 blood transfusions were used for the management of PPH. Study conducted by Meena BL et al,²³ reported that the average amount of the blood loss with the three drugs in this study was 310, 286 and 258 ml, respectively with misoprostol, oxytocin and methylergometrine (p = 0.0001), showing that of the drugs used methylergometrine was the most effective drug in reducing the blood loss.

CONCLUSION

It was concluded that best results were obtained with use of AMTSL, combination of more than one medical option and surgical management were equally effective in treating the PPH. Blood reaction, Renal failure and Infection were the commonest complication and maternal mortality was only 4%.

LIMITATIONS

Single centre and small sample size study.

SUGGESTIONS / RECOMMENDATIONS

Further big sample size and multi-centre studies should be done to explore the best treatment option of primary postpartum hemorrhage. Emergency blood arrangement facilities should be developed of all blood groups. Ambulance facilities should be provided to the all-basic health units for early arrival during any adverse obstetrics complication.

CONFLICT OF INTEREST / DISCLOSURE

None.

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